

The Mathematics Assessment

The NAEP mathematics assessment measures students' ability to solve problems in five mathematics content strands: Number Properties and Operations; Measurement; Geometry; Data Analysis and Probability; and Algebra. Within each of these five content strands, students are asked questions that involve low, moderate, and high mathematical complexity.

The NAEP mathematics assessment includes multiple-choice questions, short-answer constructed-response questions, and extended constructed-response questions. The extended exercises allow students to communicate their ideas and demonstrate the reasoning they used to solve problems. The short-answer and extended-response questions make up approximately 50 percent of student assessment time. The assessment also incorporates the use of calculators, rulers, protractors, and ancillary materials such as spinners and geometric shapes in some parts of the assessment, but not all.

Calculator use is permitted on approximately one-third of the test questions (four-function calculators at Grade 4). NAEP provides calculators for all students. At Grade 12, students may use their own scientific or graphing calculators. For more information regarding the mathematics assessment framework please visit <http://nagb.org>.

NAEP Mathematics Framework Distribution of Questions Across Content Strands

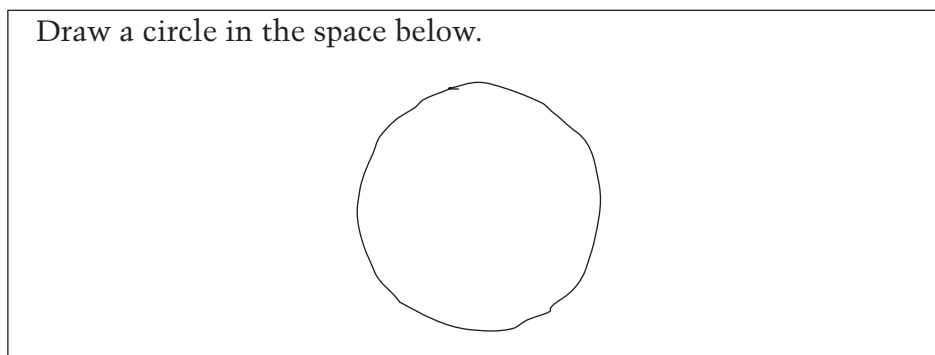
Number Properties and Operations	40%
Measurement	20%
Geometry	15%
Data Analysis and Probability	10%
Algebra	15%

Mathematics Booklet Directions

This assessment uses many different booklets. Each booklet has different questions. Do not worry if the person next to you is working on questions that do not look like those you are working on.

Read each question carefully and answer it as well as you can. Do not spend too much time on any one question.

For some of the questions you may need to write or draw the answer. You can see how this is done in the example below.



You may be given a calculator to use for at least one part of your booklet. If you are given a calculator, you will have to decide when to use it in each section where its use is permitted. For some questions using the calculator is helpful, but for other questions the calculator may not be helpful. After each question you will be asked to indicate whether you used the calculator.

When you receive the calculator, make sure you know how to use it. There are instructions on the back cover of this booklet to help you. If the calculator does not work or if you do not know how to use it, raise your hand and ask for help.

REMEMBER:

Read each question CAREFULLY.

Fill in only ONE OVAL for each question or write your answer in the space provided.

If you change your answer, ERASE your first answer COMPLETELY.

CHECK OVER your work if you finish a section early.

Do not go past the



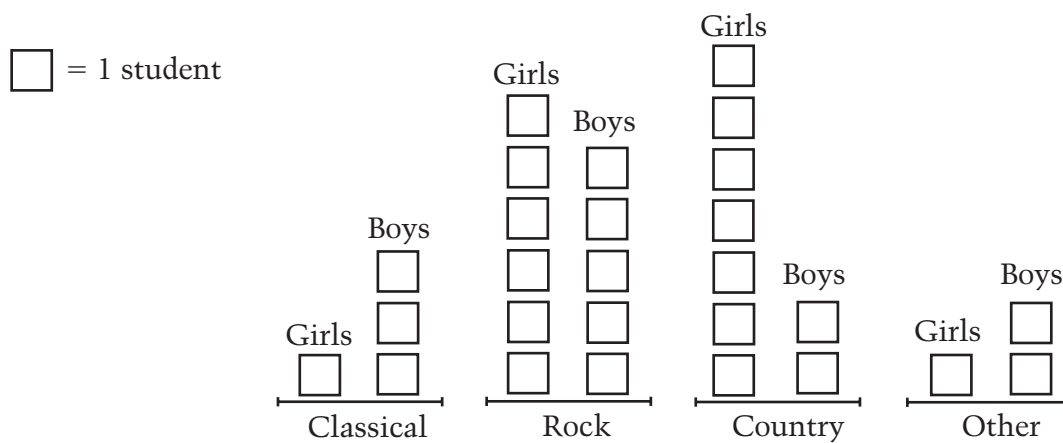
sign at the end of each section until you are told to do so.



Sample Mathematics Questions

Grade 4

1. Each boy and girl in the class voted for his or her favorite kind of music. Here are the results.

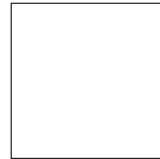
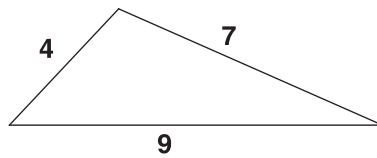


Which kind of music did most students in the class prefer?

- Ⓐ Classical
- Rock
- Ⓒ Country
- Ⓓ Other

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2. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only \$1.00 bills. What is the least number of \$1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days?



3. If both the square and the triangle above have the same perimeter, what is the length of each side of the square?

- ☐ A 4
- ☒ B 5
- ☐ C 6
- ☐ D 7



Student Background Questionnaire

General Directions for Grade 4

In the next two sections, you will be asked questions about yourself and your education. We will read the first section together. To answer these questions, fill in the oval beside the answer that is true for you. For example, fill in the oval beside your answer to this question:

How many movies did you see last month on television and in movie theaters?

- ☐ Ⓐ None
- ☐ Ⓑ 1 to 5
- ☐ Ⓒ 6 to 10
- ☐ Ⓓ More than 10

You should have filled in the oval beside the answer that best tells how many movies you saw last month on television and in movie theaters. On questions like this, be sure to make your answer mark clear and dark in the oval. If you make a mistake or want to change your answer, be sure to completely erase any unwanted marks.

You will be told when it is time to begin and end each section.

Do not go past the  sign at the end of each section until you are told to do so.

If you finish before time is called, go back and check your work on that section only. Use your time carefully. Do as much as you can in each section.



Student Background Questionnaire

In this section, please tell us about yourself and your family. The section has 11 questions. Mark your answers in your booklet.

VB331330

1. Are you Hispanic or Latino? Fill in **one or more ovals**.

- ☐ Ⓐ No, I am not Hispanic or Latino.
- ☐ Ⓑ Yes, I am Mexican, Mexican American, or Chicano.
- ☐ Ⓒ Yes, I am Puerto Rican or Puerto Rican American.
- ☐ Ⓓ Yes, I am Cuban or Cuban American.
- ☐ Ⓔ Yes, I am from some other Hispanic or Latino background.

VB331331

2. Which of the following best describes you? Fill in **one or more ovals**.

- ☐ Ⓐ White
- ☐ Ⓑ Black or African American
- ☐ Ⓒ Asian
- ☐ Ⓓ American Indian or Alaska Native
- ☐ Ⓔ Native Hawaiian or other Pacific Islander

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For the rest of the questions in this section, fill in only **one** oval for each question.

VB331333

3. Does your family get a newspaper at least four times a week?

☐ A Yes
☐ B No
☐ C I don't know.

VB331334

4. Does your family get any magazines regularly?

☐ A Yes
☐ B No
☐ C I don't know.

VB331335

5. About how many books are there in your home?

☐ A Few (0–10)
☐ B Enough to fill one shelf (11–25)
☐ C Enough to fill one bookcase (26–100)
☐ D Enough to fill several bookcases (more than 100)

VB331336

6. Is there a computer at home that you use?

☐ A Yes
☐ B No

VB331337

7. Is there an encyclopedia in your home? It could be a set of books, or it could be on the computer.

☐ A Yes
☐ B No
☐ C I don't know.

TB001101

8. About how many pages a day do you have to read in school and for homework?

☐ A 5 or fewer
☐ B 6–10
☐ C 11–15
☐ D 16–20
☐ E More than 20

VB331339

9. How often do you talk about things you have studied in school with someone in your family?

☐ A Never or hardly ever
☐ B Once every few weeks
☐ C About once a week
☐ D Two or three times a week
☐ E Every day

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VB331447

10. How many days were you absent from school in the last month?

- Ⓐ None
- Ⓑ 1 or 2 days
- Ⓒ 3 or 4 days
- Ⓓ 5 to 10 days
- Ⓔ More than 10 days

VB331451

11. How often do people in your home talk to each other in a language other than English?

- Ⓐ Never
- Ⓑ Once in a while
- Ⓒ About half of the time
- Ⓓ All or most of the time



Student Background Questionnaire

Mathematics—Grade 4

This section has 11 questions. Mark your answers in your booklet. Fill in only **one** oval for each question.

VB525162

1. How often do you use a computer for math at school?

☐ Ⓐ Never or hardly ever

☐ Ⓑ Once every few weeks

☐ Ⓒ About once a week

☐ Ⓓ Two or three times a week

☐ Ⓔ Every day or almost every day

Questions 2–5. For the following questions, think about all the times you do things for math. Include things you do at home, at school, or anywhere else.

VB525166

2. Do you use a computer to practice or drill on math?

☐ Ⓐ Yes

☐ Ⓑ No

VB525172

3. Do you use a computer to play math games?

☐ Ⓐ Yes

☐ Ⓑ No

VB525174

4. What kind of **calculator** do you normally use?

☐ Ⓐ I don't have a calculator

☐ Ⓑ Regular calculator (addition, subtraction, multiplication, division)

☐ Ⓒ Graphing calculator

VB517158

5. When you take a math test or quiz, how often do you use a calculator?

☐ Ⓐ Never

☐ Ⓑ Sometimes

☐ Ⓒ Always

GO ON TO THE NEXT PAGE 

Questions 6–8. The following statements are about math. For each statement, please mark the answer that best describes you.

VB473813

6. I like math.

- ☐ Ⓐ This is not like me.
- ☐ Ⓑ This is a little like me.
- ☐ Ⓒ This is a lot like me.

VB473814

7. I am good at math.

- ☐ Ⓐ This is not like me.
- ☐ Ⓑ This is a little like me.
- ☐ Ⓒ This is a lot like me.

VB473815

8. I understand most of what goes on in math class.

- ☐ Ⓐ This is not like me.
- ☐ Ⓑ This is a little like me.
- ☐ Ⓒ This is a lot like me.

VB595182

9. How hard was this test compared to most other tests you have taken this year in school?

- ☐ Ⓐ Easier than other tests
- ☐ Ⓑ About as hard as other tests
- ☐ Ⓒ Harder than other tests
- ☐ Ⓓ Much harder than other tests

VC034559

10. How hard did you try on this test compared to how hard you tried on most other tests you have taken this year in school?

- ☐ Ⓐ Not as hard as on other tests
- ☐ Ⓑ About as hard as on other tests
- ☐ Ⓒ Harder than on other tests
- ☐ Ⓓ Much harder than on other tests

VB595184

11. How important was it to you to do well on this test?

- ☐ Ⓐ Not very important
- ☐ Ⓑ Somewhat important
- ☐ Ⓒ Important
- ☐ Ⓓ Very important

